We Claim:

- 1. A process for patterning films comprising the steps of:
- 5 (a) vapor depositing resist material onto a film disposed on a substrate through a repositionable aperture mask, and
 - (b) using a subtractive process to remove the exposed portion of said film.

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- 2. The process of claim 1 further comprising the step of removing said resist material.
- 3. The process of claim 1 wherein said resist

 material is selected from the group consisting of vapordepositable polymers, parylene, metal oxides, metal
 nitrides, inorganic semiconductors, and metals.
- 4. The process of claim 3 wherein said resist 20 material is silicon dioxide.
 - 5. The process of claim 1 wherein said film is selected from the group consisting of organic and inorganic semiconductor materials, organic and inorganic dielectric materials, metals, metal oxides and nitrides, and transparent conducting oxides.
 - 6. The process of claim 5 wherein said film is selected from the group consisting of organic and inorganic semiconductor materials.
 - 7. The process of claim 6 wherein said film is selected from the group consisting of pentacene, substituted

pentacene, amorphous and poly silicon, and zinc oxide.

8. The process of claim 1 wherein said subtractive process is selected from the group consisting of wet chemical etching, solvent removal, dry etching, and laser ablation.

9. The process of claim 1 wherein said aperture mask is reusable.

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- 10. The process of claim 1 wherein said aperture mask is a polymeric aperture mask.
- 11. The process of claim 10 wherein said polymeric aperture mask comprises polyimide.
 - 12. The process of claim 1 wherein said substrate is a flexible substrate.
- 20 13. The process of claim 12 wherein said flexible substrate is capable of wrapping around the circumference of a cylinder of less than about 50 cm diameter without distorting or breaking.
- 25 14. A thin film transistor wherein one or more transistor features were patterned from a film using the process of claim 1.
- 15. A thin film transistor wherein the semiconductor was patterned from a film using the process of claim 1.